

### **REMARKS**

Claims 1 – 9 are pending and under consideration in the above-identified application.

In the Office Action, Claims 1 – 9 are rejected.

In this Amendment, Claims 1, 2, 5, and 6 are amended, and Claims 10 – 16 are added. No new matter has been introduced as a result of this amendment.

Accordingly, Claims 1- 16 are now at issue.

#### **I. 35 U.S.C. § 112 Rejection of Claims 4, 5 and 7**

Claims 4, 5, and 7 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 has been amended

#### **II. 35 U.S.C. § 102 Anticipation Rejection of Claim 1**

Claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by Ohshita et al. (“Ohshita”) (U.S. Patent No. 6,511,776).

Claim 1 is directed to a battery. The battery comprises a cathode, an anode, and an electrolyte. The anode has an anode collector and an anode active material layer which is provided on the anode collector and which is alloyed with the anode collector on at least a part of interface between the anode active material layer and the anode collector, and the electrolyte contains an electrolyte solution containing *vinylethylene carbonate* and an electrolytic salt.

Thus, the electrolyte contains an electrolyte solution containing vinylethylene carbonate and an electrolytic salt.

The present application discloses that:

“As evidenced by Table 3, according to Example 3 containing vinylethylene carbonate, higher capacity maintenance ratio was obtained compared to in Example 3-1

not containing vinylethylene carbonate. On the contrary, regarding Comparative examples 3-2 and 3-3 wherein the anode active material layer was formed by application, higher capacity maintenance ratio was obtained in Comparative example 3-2 containing no vinylethylene carbonate compared to Comparative example 3-3 containing vinylethylene carbonate. That is, it was found that, even in the secondary battery wherein the anode active material layer 32B was formed by liquid phase method, and the anode active material layer 32B was alloyed with the anode collector 32A on at least a part of interface between the anode active material layer 32B and the anode collector 32A, when the electrolyte solution contains vinylethylene carbonate, its cycle characteristics could be improved. In addition, it was found that when a gel electrolyte was used, cycle characteristics could be improved as well."

See page 25, line 23 to page 26, line 13. Thus, in the present application Applicants have taught that vinylethylene carbonate is an essential result-effective variable in the composition of the electrolyte solution. That is, vinylethylene carbonate is essential for the battery to have a higher capacity maintenance ration, which is a new and unexpected result relative to the cited prior art.

In contrast, Ohshita fails to teach or discloses the electrolyte contains an electrolyte solution containing vinylethylene carbonate.

In fact, Ohshita states (emphasis added) that:

"Further, the polymer electrolyte battery according to the present invention may employ as a solvent contained in the non-aqueous electrolyte solution in the polymer electrolyte any solvent containing *vinylene carbonate* in a concentration of 0.01 to 90 vol % as described above. Vinylen carbonate may be used in combination with other known solvents that have been generally utilized. Examples of such solvents include *ethylene carbonate*, propylene carbonate, butylene carbonate, dimethyl carbonate, diethyl carbonate, methylethyl carbonate, 1,2-diethoxyethane, 1,2-dimethoxyethane, ethoxymethoxyethane, and the like."

That is, as stated by the Examiner Ohshita discloses that the electrolyte solution of the battery may contain vinylen carbonate which may be used with other known solvents, such as ethylene carbonate, but does not disclose that the electrolyte solution contains vinylen carbonate.

Moreover, the claimed anode has an anode collector and an anode active material layer which is provided on the anode collector and which is alloyed with the anode collector on at least a part of interface between the anode active material layer and the anode collector. This

limitation is also not taught or suggested by Ohshita.

Thus, Ohshita fails to teach or suggest all of the limitations of Claim 1.

Accordingly, Claim 1 is patentable over Ohshita, and Applicants respectfully request that this claim rejection be withdrawn.

### **III. 35 U.S.C. § 102 Anticipation Rejection of Claim 1**

Claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by Nakanishi et al. (“Nakanishi”) (U.S. Patent No. 6,551,743).

As stated above, Claim 1 has been amended to recite that the electrolyte contains an electrolyte solution containing vinylethylene carbonate and an electrolytic salt.

However, Nakanishi also fails to teach or suggest this distinguishable limitation.

Accordingly, Claim 1 is patentable over Nakanishi, and Applicants respectfully request that this claim rejection be withdrawn.

### **IV. 35 U.S.C. § 103 Obviousness Rejection of Claims**

Claims 2 – 9 were rejected under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Ohshita et al. (“Ohshita”) (U.S. Patent No. 6,511,776).

Claim 2 has been amended in a similar fashion to Claim 1. As such, Claim 2 is patentable over Ohshita, as are dependent Claims 3 – 9 for at least the same reasons.

Moreover, Claim 2 recites that the anode has an anode collector and an anode active material layer which is formed on the anode collector by at least one method from the group consisting of vapor-phase method, liquid phase method and sinter method.

However, Ohshita also fails to teach or suggest this other distinguishable limitation.

Accordingly, Applicants respectfully request that these claim rejections be withdrawn.

In regard to the newly added Claims 10 – 16, Claim 10 is dependent on patentable Claim 2 and thus patentable for at least the same reasons.

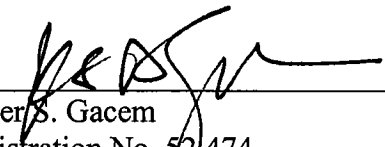
Independent Claim 11 recites the same distinguishable limitations as those of Claim 2. Thus, Claim 11 is patentable over Ohshita, as are dependent Claims 12 – 16 for at least the same reasons.

**V. Conclusion**

In view of the above amendments and remarks, Applicant submits that Claims 1 – 16 are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

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